

Angina Pectoris: Review Questions

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QUESTIONS

Choose the single best answer for each question.

1. Which of the following best describes variant or Prinzmetal's angina?

- A) Angina at rest, often in early morning, associated with sinus tachycardia (ST) elevation
- B) Angina at rest, often in early morning, associated with ST depression
- C) Angina with effort, often in early morning, associated with ST elevation
- D) Angina with effort, often in early morning, associated with ST depression

2. Which of the following mediators are associated with acute coronary syndromes?

- A) Adenyl cyclase, growth hormone, and parathyroid hormone
- B) Insulin-like peptides, thyroxin, and melatonin
- C) Pancreatic growth factor, serotonin, and adenosine monophosphate
- D) Thromboxane A₂, serotonin, and adenosine diphosphate

3. Which of the following contributes to the beneficial effect of nitroglycerin?

- A) Decrease of ventricular compliance
- B) Dilation of systemic veins
- C) Increase of left ventricular preload
- D) Increase of left ventricular afterload

4. How do slow calcium-channel blockers produce relaxation of vascular smooth muscle?

- A) Fragmenting thick filaments
- B) Making no net change of influx of calcium
- C) Reducing influx of calcium to the cell
- D) Reducing influx of calcium to the lysosome organelle of the mitochondrion

5. β -blockers (β -adrenergic agents) are used in the treatment of angina because:

- A) They decrease variables such as heart rate and myocardial contractility
- B) They increase afterload and preload
- C) They increase sinus node automaticity
- D) They increase sympathetic tone to the myocyte

(turn page for answers)

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EXPLANATION OF ANSWERS

1. **(A) Angina at rest, often in early morning, associated with sinus tachycardia (ST) elevation.** Patients with Prinzmetal's angina are usually characterized by angina at rest, often in the early morning hours, associated with ST segment elevation on the electrocardiogram and coronary spasm. In 1959, Prinzmetal reintroduced this topic of atypical angina to include the description of coronary artery vasospasm, seen in normal coronary arteries.
2. **(D) Thromboxane A₂, serotonin, and adenosine diphosphate.** The conversion of chronic coronary disease to acute coronary syndromes involves multiple mediators generally associated with platelet attachment and aggregation. Platelet expression of thromboxane A₂ and other mediators following adhesion directly contribute to thrombosis.
3. **(B) Dilation of systemic veins.** Nitroglycerin products are both venous capacitance dilators and coronary and systemic artery dilators. Nitroglycerin products have complex beneficial effects on patients with coronary artery disease. Administration of nitroglycerin results in the dilation of systemic veins and decrease of myocardial wall tension and oxygen demand, accompanied by vasodilation of large- and medium-sized coronary arteries with increased coronary blood flow to the subendocardium. Nitroglycerin reduces the afterload, reduces preload coronary disease ventricular volume, and increases ventricular compliance.
4. **(C) Reducing influx of calcium to the cell.** Verapamil hydrochloride, nifedipine, and diltiazem hydrochloride are all slow calcium-channel antagonists that reduce influx of calcium to the cell, resulting in vasodilation of vascular smooth muscle and increased coronary blood flow, especially to the epicardial region. These drugs have complex mechanisms of action. Slow calcium-channel blockers have a rather selective effect on cardiovascular functions, with a direct action on the smooth muscle of the arteries.
5. **(A) They decrease variables such as heart rate and myocardial contractility.** β -blockers have been a great advance in the treatment of coronary artery disease because of their ability to decrease such values. Although congestive heart failure may be induced in patients with severe left ventricular dysfunction, these drugs are gaining acceptance in routine use in patients with mild to moderate left ventricular dysfunction.

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CARDIOLOGY

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